AMENDED CLAIMS (UNMARKED VERSION):

1. (AMENDED) A method of photoresist processing comprising:

providing a substrate over which is formed composite layers of insulation comprising a first layer of dielectric separated from a second layer of dielectric by an intermediate etch stop layer of dielectric;

forming a top dielectric layer over said composite layers of dielectric;

forming a first photoresist layer over said composite layers of insulation and top insulating layer;

patterning a via hole pattern in said first photoresist layer by exposing to I-line 365nm radiation and developing;

forming a second photoresist layer over via patterned said first photoresist layer;

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patterning a trench line pattern in second photoresist layer by exposing to deep-UV 248nm radiation and developing;

etching top and second layer of dielectric underlying first layer of photoresist using the via hole pattern layer;

etching said intermediate layer of dielectric under said second layer of dielectric using the first layer of photoresist as a mask;

etching said composite layer of insulation transferring said trench line pattern into said first layer of photoresist and into said second layer of dielectric and transferring said via hole pattern into said intermediate layer of dielectric and into said first layer of dielectric;

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removing said layers of photoresist and filling the trench line and via hole openings with metal.

3. (AMENDED) The method of claim 1, wherein said composite layers of insulation are low dielectric constant dielectric material consisting of $SiOF_x$, $SiOC_x$, $SiOH_x$, where the value of "x" is in range from 0.5 to 1.0, in a thickness range from approximately 4000 to 12000 Angstroms for said first layer of dielectric and in a thickness range from approximately 4000 to 8000 Angstroms for said second layer of dielectric.

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4. (AMENDED) The method of claim 1, wherein said intermediate etch stop layer of dielectric consists of silicon nitride, Si_xN_y, where the value of "x" is in range from 2 to 3 and the value of "y" is in a range from 3 to 4, in a thickness range from approximately 200 to 500 Angstroms, and can used in tandem with another etch stop layer or without said etch stop.

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6. (AMENDED) The method of claim 1, wherein said first photoresist layer is positive photoresist consisting of I-line positive resists, in a thickness range from approximately 6000 to 10000 Angstroms and is selectively sensitive to and exposed to ultraviolet light I-line radiation of wavelength 365nm.

7. (AMENDED) The method of claim 1, wherein said second photoresist layer is positive photoresist consisting of positive DUV, 248nm photoresist, in a thickness range from approximately 5000 to 10000 Angstroms and is selectively sensitive to and exposed to ultraviolet light deep-UV radiation of wavelength 248nm.

A3 cont.

9. (AMENDED) The method of claim 1, wherein the dual damascene trench and via is lined with a diffusion barrier, filled with conducting metal and whereby the excess metal is removed by chemical mechanical polish.

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11. (AMENDED) A method of dual damascene patterning by use of two-layered photoresist process, having different wavelength sensitivities for each layer, comprising:

providing a substrate over which is formed composite layers of insulation wherein said composite layers comprise a first layer of dielectric separated from a second layer of dielectric by an intermediate etch stop layer of dielectric and etch stop layer of dielectric below the first layer of dielectric;

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forming a top dielectric layer over said composite layers of dielectric;

forming a first photoresist layer over said composite layers of insulation and said top dielectric layer;

patterning a via hole pattern in said first photoresist layer composed by exposing to I-line 365nm radiation and

developing said first photoresist layer by using a via hole mask;

forming a second photoresist layer over said first photoresist layer;

patterning a trench line pattern in said second photoresist layer by exposing to deep-UV 248nm radiation and developing said second photoresist layer by using a trench line mask;

etching, in two-step process, said second layer of dielectric underlying said first layer of photoresist using the via hole patterned layer of the first photoresist as a mask and transferring said via hole pattern into said second layer of dielectric;

A5 cont.

etching said intermediate layer of dielectric under said second layer of dielectric using the first layer of photoresist as a mask and transferring said via hole pattern in said layer of photoresist into said intermediate layer of dielectric;

etching said composite layer of insulation transferring said trench line pattern into said first layer of photoresist and into said second layer of dielectric to form a trench line opening, and at the same time transferring said via hole pattern into said intermediate layer of dielectric and into said first layer of dielectric to form a via hole opening;

removing said layers of photoresist and any exposed insulating material in the trench line opening and via hole opening;

depositing metal into the trench line and via hole opening with subsequent removal of excess metal by chemical mechanical polishing back, to form inlaid conducting interconnects lines and contact vias, in a dual damascene process.

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13. (AMENDED) The method of claim 11, wherein said composite layers of insulation are low dielectric constant dielectric material consisting of $SiOF_x$, $SiOC_x$, $SiOH_x$, where the value of "x" is in range from 0.5 to 1.0, in a thickness range from approximately 4000 to 12000 Angstroms for said first layer of dielectric and in a thickness range from approximately 4000 to 8000 Angstroms for said second layer of dielectric.

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14. (AMENDED) The method of claim 11, wherein said intermediate etch stop layer of dielectric consists of silicon nitride, Si_xN_y, where the value of "x" is in range from 2 to 3 and the value of "y" is in a range from 3 to 4, in a thickness range from approximately 200 to 500 Angstroms, and can used in tandem with another etch stop layer or without said etch stop.

16. (AMENDED) The method of claim 11, wherein said first photoresist layer is positive photoresist consisting of I-line positive resists, in a thickness range from approximately 6000 to 10000 Angstroms and is selectively

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sensitive to and exposed to ultraviolet light I-line radiation of wavelength 365nm.

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17. (AMENDED) The method of claim 11, wherein said second photoresist layer is positive photoresist consisting of positive DUV, 248nm photoresist, in a thickness range from approximately 5000 to 10000 Angstroms and is selectively sensitive to and exposed to ultraviolet light deep-UV radiation of wavelength 248nm.

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19. (AMENDED) The method of claim 11, wherein the dual damascene trench and via is lined with a diffusion barrier, filled with conducting metal and whereby the excess metal is removed by chemical mechanical polish.

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21. (AMENDED) A method of dual damascene patterning by use of two-layered photoresist process, having different wavelength sensitivities for each layer, comprising:

providing a substrate over which is formed composite layers of insulation wherein said composite layers comprise a first layer of dielectric separated from a second layer of dielectric by an intermediate etch stop layer of dielectric and etch stop layer of dielectric below the first layer of dielectric;

forming a top dielectric layer over said composite layers of dielectric;

forming a first photoresist layer composed of polymer over said composite layers of insulation and said top dielectric layer;

patterning a via hole pattern in said first photoresist layer composed of polymer, positive type, by exposing to I-line 365nm radiation and developing said first photoresist layer by using a via hole mask;

forming a second photoresist layer composed of polymer over said first photoresist layer;

patterning a trench line pattern in said second photoresist layer composed of, polymer, positive type, by exposing to deep-UV 248nm radiation and developing said second photoresist layer by using a trench line mask;

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etching in the first of a two-step selective reactive ion etch process using the following gases, for step one: CHF_3, C_2F_6, N_2 O_2 Ar / CO, C_4F_8, C_2F_6, Ar, producing trench and via openings;

etching in the second of a two-step selective reactive ion etch process using the following gases, for step two: CF_4, Ar O_2, CH_3F, removing SiN for bottom of via opening;

etching said second layer of dielectric underlying the first layer of photoresist using the via hole patterned layer of the first photoresist as a mask and transferring said via hole pattern into said second layer of dielectric, by etch step one above ;

etching said intermediate layer of dielectric under said second layer of dielectric using the first layer of photoresist as a mask and transferring said via hole pattern in said layer of photoresist into said intermediate layer of dielectric, by etch step one above;

etching said composite layer of insulation transferring said trench line pattern into said first layer of photoresist and into said second layer of dielectric to form a trench line opening, and at the same time transferring said via hole pattern into said intermediate layer of dielectric and into said first layer of dielectric to form a via hole opening, by etch step one above;

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removing said layers of photoresist and any exposed insulating material in the trench line opening and via hole opening by ashing and by etch step two above;

depositing metal into the trench line and via hole opening with subsequent removal of excess metal by chemical mechanical polishing back, to form inlaid conducting interconnects lines and contact vias, in a dual damascene process.

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23. (AMENDED) The method of claim 21, wherein said composite layers of insulation are low dielectric constant dielectric material consisting of $SiOF_x$, $SiOC_x$, $SiOH_x$, where the value of "x" is in range from 0.5 to 1.0, in a thickness range from approximately 4000 to 12000 Angstroms for said first layer of dielectric and in a thickness range from

approximately 4000 to 8000 Angstroms for said second layer of dielectric.

24. (AMENDED) The method of claim 21, wherein said intermediate etch stop layer of dielectric consists of silicon nitride, Si_xN_y, where the value of "x" is in range from 2 to 3 and the value of "y" is in a range from 3 to 4, in a thickness range from approximately 200 to 500 Angstroms, and can used in tandem with another etch stop layer or without said etch stop.

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26. (AMENDED) The method of claim 21, wherein said first photoresist layer is positive photoresist consisting of I-line positive resists, in a thickness range from approximately 6000 to 10000 Angstroms and is selectively sensitive to and exposed to ultraviolet light I-line radiation of wavelength 365nm.

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27. (AMENDED) The method of claim 21, wherein said second photoresist layer is positive photoresist consisting of positive DUV, 248nm photoresist, in a thickness range from approximately 5000 to 10000 Angstroms and is selectively sensitive to and exposed to ultraviolet light deep-UV radiation of wavelength 248nm.

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29. (AMENDED) The method of claim 21, wherein the dual damascene trench and via is lined with a diffusion barrier,

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filled with conducting metal and whereby the excess metal is removed by chemical mechanical polish.